



Billing Code 4333-15-P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS-R5-ES-2014-0021]

[FXES11130900000; 4500030113]

RIN 1018-AY83

Endangered and Threatened Wildlife and Plants; Removal of the Delmarva Peninsula Fox Squirrel from the List of Endangered and Threatened Wildlife

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The best available scientific and commercial data indicate that the Delmarva Peninsula fox squirrel (*Sciurus niger cinereus*) has recovered. Therefore,

under the authority of the Endangered Species Act of 1973, as amended (Act), we, the U.S. Fish and Wildlife Service (Service), remove the Delmarva Peninsula fox squirrel (commonly called the Delmarva fox squirrel) from the Federal List of Endangered and Threatened Wildlife (List). This determination is based on a thorough review of all available information, which indicates that the subspecies is now sufficiently abundant and well distributed to withstand foreseeable threats and no longer meets the definition of an endangered or threatened species under the Act.

This rule removes the Delmarva fox squirrel from the List throughout its range, including the experimental population designated for Assawoman Wildlife Management Area in Delaware. It also announces the availability of a post-delisting monitoring plan for the subspecies.

DATES: This rule is effective [INSERT DATE 30 DAYS AFTER DATE OF FEDERAL REGISTER PUBLICATION].

ADDRESSES: This final rule and the post-delisting monitoring plan are available on the Internet at <http://www.regulations.gov> under Docket No. FWS-R5-ES-2014-0021. Comments and materials received, as well as supporting documentation used in rule preparation, will be available for public inspection, by appointment, during normal business hours at: U.S. Fish and Wildlife Service, Chesapeake Bay Field Office, 177 Admiral Cochrane Drive, Annapolis, MD 21401; and on the Chesapeake Bay Field

Office Web site at: <http://www.fws.gov/chesapeakebay/>.

FOR FURTHER INFORMATION CONTACT: Field Office Supervisor, Genevieve LaRouche, by telephone at 410-573-4573; or Cherry Keller, Wildlife Biologist, at 410-573-4532, or by email at cherry_keller@fws.gov. Written questions or requests for additional information may also be directed to: Delmarva fox squirrel QUESTIONS, at the street address listed under **ADDRESSES**. Individuals who are hearing-impaired or speech-impaired may call the Federal Relay Service at 1-800-877-8337 for TTY assistance.

SUPPLEMENTARY INFORMATION:

Background

Previous Federal Action

On September 23, 2014, the Service published a proposed rule (79 FR 56686) to remove the Delmarva Peninsula fox squirrel, commonly called and hereafter referred to as the Delmarva fox squirrel (DFS), from the List of Endangered and Threatened Wildlife (List). In the proposed rule, we solicited information and comments from the public and scientific experts for 60 days, ending November 24, 2014. Later in this document, we discuss comments we received. For more information on previous Federal actions concerning the Delmarva fox squirrel, refer to the proposed rule

available at <http://www.regulations.gov> under Docket No. FWS-R5-ES-2014-0021.

Species Information

The Delmarva fox squirrel (*Sciurus niger cinereus*), a subspecies of the eastern fox squirrel (*Sciurus niger*) found only on the Delmarva Peninsula, is located between the Chesapeake Bay and the Atlantic Ocean in portions of Maryland, Delaware, and Virginia. The DFS is a large, silver-gray tree squirrel with white underparts and a wide tail. It inhabits mature forests of mixed hardwoods and pines within the agricultural landscapes of the Delmarva Peninsula and is not typically found in suburban settings. The DFS is also associated with forests that have a relatively open understory (Dueser et al. 1988, entire; Dueser 2000, entire) or where understory shrubs are clumped, leaving other open spaces (Morris 2006, p. 37). While these squirrels need mature forest for both feeding and denning, they can travel and forage in other areas, including clearcuts, young forests, and agricultural fields.

As a member of the Order Rodentia, the DFS has a life history with good potential for population increase. For example, females breed at 1 year of age, litter sizes range from two to four young, some females have potential for two litters in 1 year, and lifespans can reach 6 to 7 years in the wild. Den sites are frequently found in tree cavities, but leaf nests may also be used. Home ranges of the DFS vary considerably but are typically 12 to 16 hectares (ha) (30 to 40 acres (ac)), and individual home ranges overlap (Flyger and Smith 1980; entire, Paglione 1996; entire, Pednault-Willett 2002, p.

109). Densities range from 0.36 to 1.29 DFS per ha (0.15 to 0.5 DFS per ac), averaging 0.82 DFS per ha (0.33 DFS per ac) (Paglione 1996, p. 28; Pednault-Willett 2002, pp. 85–104).

Historically, this subspecies had a patchy distribution throughout most of the Delmarva Peninsula and into southern Pennsylvania, but by the time of its listing in 1967 (32 FR 4001; March 11, 1967), remnant populations occurred in only four Maryland counties (Taylor 1976, entire); this range contraction was most likely caused by land use changes and hunting. When the subspecies was listed, its distribution had been reduced to only 10 percent of the Delmarva Peninsula. After listing, the hunting season for this subspecies was closed, and recovery efforts focused on expanding the squirrel's distribution through translocations. In addition, new populations have been discovered since the time of listing (particularly since more intensive search efforts were initiated), and there are now many more areas of forest known to be occupied by the DFS.

The squirrel's current occupied range is defined as the area within 4.8 kilometers (km) (3 miles (mi)) of credible DFS sightings. As of the 2012 status review for the DFS, this covered 28 percent of the Delmarva Peninsula, including 10 of the 14 peninsular counties (8 counties in Maryland and 1 each in Delaware and Virginia) and 54,543 ha (134,778 ac) of occupied forest (USFWS 2012, based on 2010 data). Since that time, new sightings have continued to occur and an updated overview of its range as of 2013 is provided below in Table 1. An additional population discovered in Worcester County,

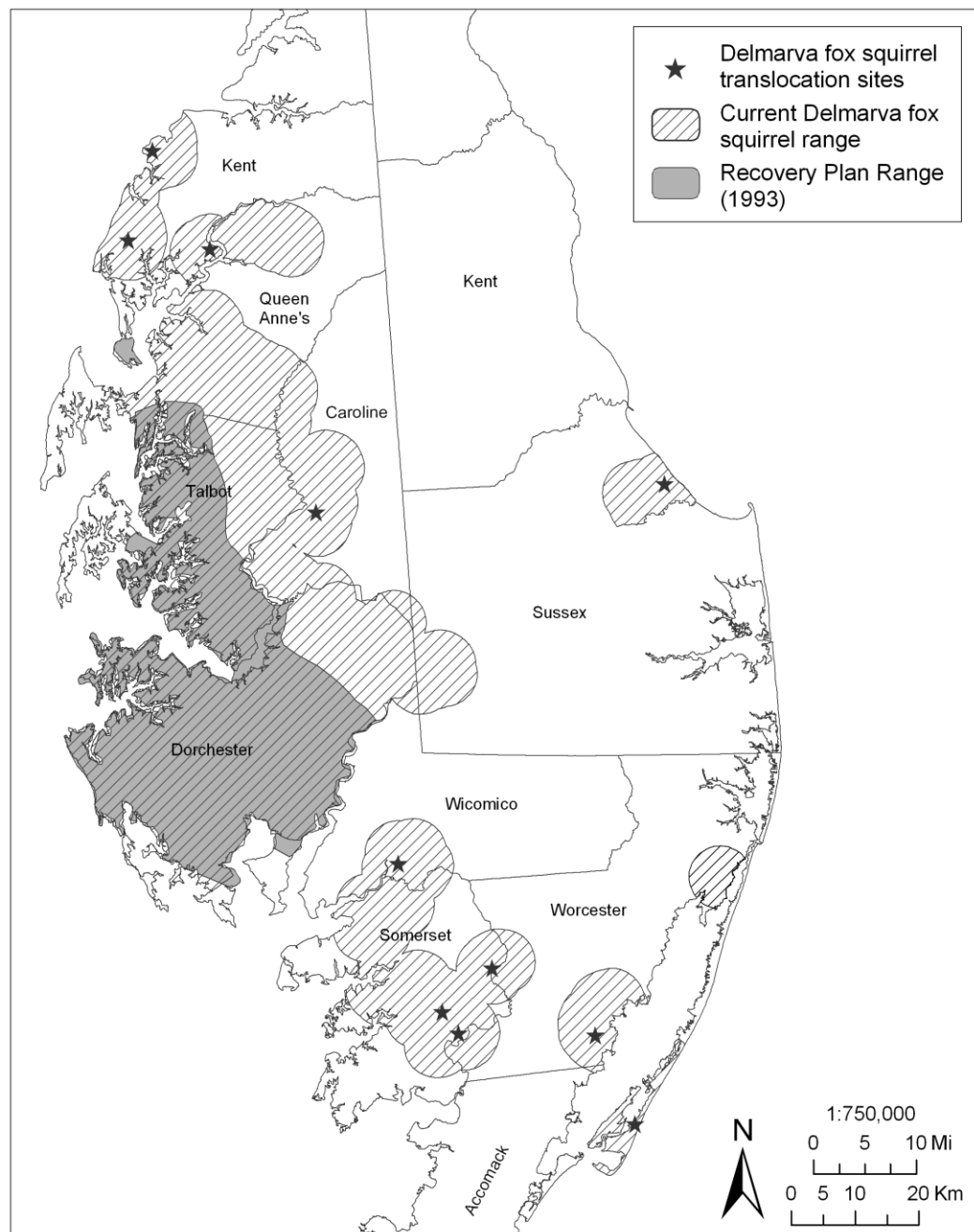
Maryland, is the first population found there that was not a result of a translocation.

Figure 1 shows range changes between the time of the 1993 recovery plan and the present decade.

Table 1. Known occupied range of the DFS, 1970 to 2013.

Occupied Range	Year				
	~ 1970	1990	2005	2010	2013
Number of counties in the range (without translocations)	3	3	6	6	7
Number of counties in the range (with translocations)	4	10	10	10	10
Total acres of occupied forest rangewide	N/A	103,311	128,434	134,778	137,363
Percent of historical range occupied	10	--	27	28	28
Source	<i>Taylor and Flyger 1974</i>	<i>USFWS 1993, recovery plan</i>	<i>USFWS 2007, 5-yr review</i>	<i>USFWS 2012, 5-yr review</i>	<i>USFWS 2013 data</i>

Figure 1. Changes in the range of DFS, 1993 to the present, including successful translocation sites.



Summary of Changes from the Proposed Rule

We have not made any substantive changes in this final rule based on the comments that we received during the public comment period on the September 23, 2014, proposed rule (79 FR 56686), but we have added or corrected text to clarify the information that was presented. This information and other clarifications have been incorporated into this final rule as discussed below in **Summary of Comments and Recommendations**.

Summary of Comments and Recommendations

In the proposed rule published on September 23, 2014 (79 FR 56686), we requested that all interested parties submit written comments on the proposal by November 24, 2014. We also solicited peer review of the scientific basis for the proposal (see *Peer Review Comments*, below), and contacted appropriate Federal and State agencies, scientific experts and organizations, and other interested parties and invited them to comment on the proposal. Newspaper notices inviting general public comment were published in the Baltimore Sun, placed on Service Web sites, and advertised by other online media outlets (e.g., <http://www.wboc.com/story/26574688/maryland-state-officials-set-to-discuss-delmarva-peninsula-fox-squirrel>). We did not receive any requests for a public hearing.

During the public comment period for the proposed rule, we received a total of 129 comment letters. Of these, 74 provided substantive comments that we address below, including one letter from the State of Maryland and comments from two peer reviewers. Both peer reviewers asked for additional detail on the life history of this subspecies, which we have provided in the supplemental documents that can be found at <http://www.regulations.gov> under Docket No. FWS–R5–ES–2014–0021. All substantive information provided during the review period either has been incorporated directly into this final determination or into the supplemental documents, or is addressed below.

Comments from States

(1) *Comment:* The State of Maryland’s Department of Natural Resources (DNR) was supportive of the proposed rule and concurred with our findings. The DNR added that it would continue to provide protection to the DFS under the authority of Maryland’s Nongame and Endangered Species Conservation Act, although likely not at the endangered level. The DNR also stated that the post-delisting monitoring plan proposed by the Service was adequate to document expansion or contraction of the range of the DFS and that the agency would participate in the monitoring effort.

Our Response: We are in agreement with the DNR and appreciate its commitment to continued conservation.

Public Comments

(2) *Comment:* Several commenters expressed concern that the DFS would be hunted after delisting, and that populations would then decline and might require relisting.

Our Response: As explained in the proposed rule and supplementary documents (see Post-delisting Monitoring Plan, appendices D through F), after delisting, the State of Maryland intends to keep the DFS on the State list of endangered and threatened species as a Species of Conservation Concern; this status does not allow a hunting season. This intention is reinforced by the State of Maryland's comment letter reiterating that the subspecies will remain State-listed as described above.

The State of Delaware also intends to keep this subspecies on its State list of endangered and threatened species, and no hunting of the DFS will be allowed after delisting. The State has written a management plan for the DFS (DNREC 2014) that calls for adding two additional DFS populations in the State, likely through translocations.

In the State of Virginia, all DFSs are currently on the Chincoteague National Wildlife Refuge, where they will not be hunted. The State has evaluated locations for potential translocations of DFSs in the future, but any future translocated populations are not expected to be subject to hunting. Enhancement of DFS populations in Virginia would be primarily aimed at restoring the native fauna of Virginia.

(3) *Comment:* Several commenters stated that the occupancy of 28 percent of the historical range was insufficient to warrant delisting.

Our Response: The Act is legislation intended to prevent extinction of native species and does not describe recovery in terms of the proportion of a historical range that is occupied by a species. We do take into account in our listing and delisting determinations the effects that loss of historical range may have on the current and future viability of a species. As explained in our significant portion of the range (SPR) final policy (79 FR 37578; July 1, 2014), we have concluded that this consideration is sufficient to account for the effects of loss of historical range when evaluating the current status of a species. The purposes of the Act, stated in section 2, are to provide a means to conserve the ecosystems upon which endangered species and threatened species depend and to provide a program for the conservation of endangered species and threatened species. The Act itself does not contain the phrase “historical range,” nor does it ever allude to restoration throughout the entire historical range as a conservation purpose.

Some concerns about the current range of the DFS likely stem from a frequently quoted reason for listing, “the species was listed because it declined to 10 percent of its historical range” (USFWS 1993, p. 1). However, the substantial population decline as evidenced by that range decline is the actual reason for the listing. In 1944, the DFS was found in seven counties (Dozier and Hall 1944), but by 1967, it was known to occur in

only four counties; thus, the decline would have been apparent and reasonably concerning to many biologists at the time of listing.

(4) *Comment:* Several commenters stated that the total number of animals in the rangewide population did not appear to be large enough to warrant delisting and expressed a concern that the population would decline again after delisting.

Our Response: As described in the proposed rule, the best estimate of the rangewide number of the DFS at the time of the 2012 status review was 22,368 (USFWS 2012, p. 20), which we can approximate as 20,000. However, the critical question with regard to the listing status of the subspecies is not a specified number of individuals; rather, it is the level of extinction risk, indicating whether the subspecies meets the definition of endangered or threatened. To address this question, we conducted a population viability analysis (PVA) for the DFS (Hilderbrand et al. 2007, entire), which enabled us to evaluate how the foreseeable threats may affect the probability of extinction of DFS subpopulations (USFWS 2012, pp. 18–21, 23–44).

The Hilderbrand et al. (2007) PVA model indicates that a population of 130 animals would have a 95 percent chance of persisting for 100 years. This threshold, also called a minimum viable population (MVP), provides a useful benchmark of extinction risk. It should not be mistaken for a recovery goal but is, rather, a population size with an associated extinction risk based on the life history of the DFS before assessing additional

threats. This PVA includes variations in adult and juvenile survival, the number of young produced per year, and variability in environmental effects.

Using this model, we estimate that the known occupied forest within the range of the DFS contains a total population that is 171 times the MVP and that, even under the worst-case scenarios for threats, including inundation of areas up to 0.6 meters (m) (2 feet (ft)) above sea level due to sea level rise, we would still have a total population that is 145 times the MVP. Further, our analysis indicates that the rangewide population would comprise at least 15 subpopulations broadly distributed across the Delmarva Peninsula. After considering the conservation imperatives of habitat availability, habitat connectivity, population resiliency and redundancy, and genetic and/or ecological representation, we concluded that the risk of extinction is low, even under a worst-case scenario, and that the current population is sufficiently abundant and well distributed to withstand foreseeable threats.

(5) *Comment:* Several commenters stated that sea level rise was a great concern, and that threats from climate change and sea level rise have not been eliminated.

Our Response: We agree that climate change and sea level rise trends are continuing; nonetheless, the pertinent question is whether these factors are likely to threaten the DFS with extinction or with endangerment in the foreseeable future. We analyzed the impact of sea level rise and associated habitat loss on the DFS using a

worst-case scenario of 0.6 m (2 ft) of inundation within 40 years. As stated in our response to Comment 4, we evaluated this factor along with a number of other factors with the potential to affect the long-term viability of DFS subpopulations (noting that various conditions can occur on the landscape and threaten some species and not others depending on the abundance, distribution, and life history of the species). After considering habitat availability and connectivity, as well as population resiliency, redundancy, and representation, we conclude that the risk of extinction is low even under the worst-case sea level rise scenario (see **Summary of Factors Affecting the Species, Factor A**), given projected population levels and distribution, and the ability of the DFS to colonize unoccupied habitat as described in the September 23, 2014, proposed rule (79 FR 56686) and 2012 status review (USFWS 2012).

(6) *Comment:* One commenter expressed two concerns regarding DFS movements in response to sea-level rise: First, during sea level rise, individual animals would not be able to move inland because DFSs prefer moving on the ground and would be unable to move across habitat that became flooded. Second, with the occurrence of sea-level rise and the associated loss of habitat, populations would not be able to shift inland over time.

Our Response: DFSs have always been abundant in southern Dorchester County, where forests are frequently flooded in the spring and are often exposed to high tidal surges. Further, DFSs have been observed moving across marshlands to other woodlands (L. Miranda 2010 and C. Keller pers. comm. 2009) and moving through flooded

woodlands on logs and hummocks as well as through the trees (C. Bocetti pers. comm. 2015). In these same areas, marked animals have been documented to move 4 km (2.5 mi) and return within a season, despite intervening streams and associated marshlands 100 m (328 ft) wide or greater (C. Bocetti pers. comm. 2015). Typical home ranges are about 16.2 ha (40 ac) in size and generally include forested wetlands, indicating that DFSs already inhabit forests that experience periodic flooding.

Sea level rise is likely to result in more frequent flooding and storm and tidal surges, with gradual deterioration of habitat at the shoreline edges. It is therefore likely that individual animals will need to shift their home range inland and that the overall population will shift inland as well. The ability of DFSs to shift their home ranges in response to habitat change has already been demonstrated as individual animals moved to new areas following clearcuts in portions of their home ranges (Paglione 1996); we note that clearcutting is a more rapid and dramatic habitat alteration than would be expected from flooding or storm surges.

In terms of available habitat for the DFS to move into following storm events and/or sea level rise, we evaluated the rangewide availability and connectivity of forest patches in the 2012 status review (USFWS 2012) by mapping the connectivity of forest patches relative to dispersal of DFS subpopulations (USFWS 2012, figures 9 and 10). After quantitative analysis of habitat that could be lost due to sea level rise and development (USFWS 2012, table 7), we concluded that even if all potentially affected

habitat was lost immediately, remaining DFS populations would still be sufficiently abundant and well distributed to alleviate the risk of extinction.

With regard to the connectivity needed to allow DFSs to move to more upland habitats, we recognize that sea-level rise can widen rivers and increase obstacles to DFS movement, especially from west to east in southern Dorchester County. However, even with maximum projected inundation, DFSs could disperse from southern Dorchester without crossing streams. In addition, southern Dorchester County would still contain about 2,400 to 3,200 ha (6,000 to 8,000 ac) of suitable occupied habitat, supporting at least six times the MVP. Given this, we predict long-term population viability in these areas of Dorchester County.

(7) *Comment:* One commenter stated that the DFS should not be delisted because it has not met all of the recovery criteria contained in the most recent DFS recovery plan (USFWS 1993). In particular, the commenter contended that our analysis of recovery criterion 6 does not adequately support our conclusion that this criterion has been met.

Our Response: We will respond first to the issue of whether recovery criteria must be met in order to delist a species, and second to the issue of whether criterion 6 has been met.

Notwithstanding our conclusion that the recovery criteria for the DFS, as required

under section 4(f) of the Act, have been met, this is not the requisite analysis for determining the appropriate listing status of the species. Rather, listing determinations must be made in accordance with sections 4(a)(1) and 4(b) of the Act. Section 4(a)(1) requires that the Secretary determine whether a species is endangered or threatened because of one or more of five threat factors, while section 4(b) requires that the determination be made “solely on the basis of the best scientific and commercial data available.” Thus, any determination to delist a species must be based on the best information available at the time of the determination and the results of the five-factor analysis, notwithstanding any information in the recovery plan.

Although meeting recovery criteria is not essential for determining a species’ listing status, our most recent status review (USFWS 2012) led us to the conclusion that all recovery criteria for the DFS, including criterion 6, have been met. Criterion 6 states that “mechanisms that ensure perpetuation of suitable habitat at a level sufficient to allow for desired distribution [must be] in place and implemented within all counties in which the species occurs.” Our analysis showed that there are many State and Federal laws and land protection programs in place that actively protect land at the present time and will continue to do so into the future. A detailed table and map of the land protected by these programs in each county is provided for each county in the 2012 status review (USFWS 2012, table 5 and figure 7). These protective mechanisms are also presented in our analysis of Factor D (USFWS 2012, pp. 38–39), with a detailed description of each program provided in appendix D of the same document. These data clearly portray the

adequacy of these regulatory mechanisms.

(8) *Comment:* One commenter stated we had not adequately addressed the future of the translocated population of the DFS at Chincoteague National Wildlife Refuge (NWR) due to the projections in sea level rise.

Our Response: We agree with the commenter that this coastal population of the DFS, inhabiting Assateague Island, a barrier island, is vulnerable to reduced habitat and isolation from sea level rise, and we discussed this situation in the September 23, 2014, proposed rule (79 FR 56686). We also discuss it below, under Factor A: *Loss of forest habitat from sea level rise*, where we note that although the island's beaches, marshes, and shorelines are vulnerable to sea level rise, most of the forest habitat occupied by the DFS is above the 0.6 m (2 ft) inundation worst-case scenario. Even so, Refuge managers are aware of the risks of sea level rise and are actively exploring management responses to this factor. As stated in the proposed rule: "Sea level rise is expected to cause severe losses to beach and tidal flat habitat but currently upland habitat would only be reduced by 4 to 8 percent (National Wildlife Federation 2008, p. 69). [Chincoteague's] Comprehensive Conservation Plan [CCP] commits to continued forest management to maintain suitable habitat for Delmarva fox squirrels and continued monitoring of Delmarva fox squirrel populations." The draft CCP is available at: <http://www.fws.gov/nwrs/threecolumn.aspx?id=2147550165>.

We consider it highly likely that a DFS population will persist on Chincoteague NWR for the foreseeable future, although there may be a shift in the habitats that are occupied. Nonetheless, even if the Chincoteague population were to be lost, this would not cause a rangewide risk of extinction (USFWS 2012, table 7).

(9) *Comment:* One commenter stated, “In its 2007 and 2012 status reviews, the Service concluded that these recovery criteria were not based on the best available science and did not represent the most up-to-date information on the biology of the DFS. And the Service also concluded in these status reviews that the recovery criteria did not specifically address all of the five threat-based listing factors.”

Our Response: The commenter may be referring to sections 2.2.2.1 and 2.2.2.2 of the referenced status reviews (USFWS 2007, p. 3; USFWS 2012, p. 5):

“2.2.2.1 Do the recovery criteria reflect the best available and most up-to-date information on the biology of the species and its habitat? No. More recent information on the squirrel’s distribution, subpopulation delineation, and population persistence is not reflected in the 1993 recovery criteria. Nonetheless, these criteria continue to act as generally appropriate measures of recovery.

2.2.2.2 Are all of the relevant listing factors addressed in the recovery criteria?
No. None of the recovery criteria specifically addresses any of the five listing factors,

although habitat-related threats are alluded to. The criteria evaluate the biological status of the species.”

These statements are intended to convey that although new information had become available since 1993, the recovery criteria were still considered adequate for assessing DFS recovery progress. With regard to criteria addressing the five listing factors, the lack of specific threats-based criteria is typical of recovery plans at that time and does not preclude a separate five-factor analysis (see Comment 7, above). Significantly, since the two status reviews analyze both the recovery criteria and the five listing factors, each review constitutes a complete assessment of the status of the species (USFWS 2007; USFWS 2012). Overall, the two status reviews and the September 23, 2014, proposed rule (79 FR 56686) are based on the best available information on the biology of the DFS and the threats to its long-term viability.

(10) *Comment:* One commenter noted that the population data in the 2012 status review were the same as those in the 2007 review and suggested that this showed there was no increase in the population or range between those two time periods. The commenter further suggested that there was a decrease in DFS-occupied forest between 2007 and 2012. The commenter stated that despite the information for the two status reviews being essentially the same, different conclusions were reached.

Our Response: It is not clear how the commenter’s interpretation of the data in

the two reviews was made. Both the September 23, 2014, proposed rule (79 FR 56686 Table 1) and the 2012 status review (Chart 2) clearly show an increase in the area of occupied forest from 51,975 ha (128,434 ac) in 2005, to 54,543 ha (134,778 ac) by 2010; a map illustrating the changes in the range between the two reviews is also provided (USFWS 2012, figure 3). Since 2010, we have continued to document new areas of occupied forest and provide an updated number of 55,589 ha (137,363 ac) as of 2013 (79 FR 56686, September 23, 2014, Table 1).

The rangewide population estimates in the 2007 and 2012 reviews differ only slightly (19,265 versus 22,368 animals, respectively), but as described in the 2012 review, the two estimates were based on different survey methods. Light detection and ranging (LiDAR) data, which allow us to distinguish between mature forests and other forested areas, were not available for the 2007 status review. We were able to use a more refined and conservative approach in the 2012 review and estimated the rangewide population using only occupied mature forest. Both estimates are intended to provide a general measure of the rangewide population size (USFWS 2007, p. 8; USFWS 2012 p. 20).

It should also be noted that in the 2007 review, we concluded that DFS recovery was imminent. We indicated that a final listing recommendation was pending while we obtained and analyzed LiDAR data, and that, if new information continued to support our finding that DFS habitat availability and connectivity were likely to persist over the

foreseeable future, we would recommend initiation of delisting when the LiDAR analysis was completed (USFWS 2007, p. 27).

(11) *Comment:* One commenter was concerned because 9 of 22 subpopulations (40 percent) appear to be vulnerable to extirpation.

Our Response: This concern does not take into account the relative size of these subpopulations. As described in the 2012 status review (USFWS 2012, p. 42, figure 5 and table 7), there is a higher vulnerability to extirpation for 9 smaller subpopulations, but the vast majority (95 percent) of DFSs occurs in 11 large, secure subpopulations. This provides a solid indication of continued persistence and growth of the rangewide population. Most of the smaller populations originated as translocations, which have become well established and have contributed to the expanded distribution of the subspecies. Further, as shown by the 2007 population viability analysis (Hilderbrand et. al 2007), if one or more small populations blink out, the rangewide population is still not vulnerable to extinction; even accounting for all projected losses from sea level rise and development, the rangewide population will still be 145 times the MVP, indicating long-term viability.

Peer Review Comments

In accordance with our peer review policy published on July 1, 1994 (59 FR 34270), we solicited expert opinion from five independent scientists with expertise that

included familiarity with the DFS and its habitat, biological needs, and threats. We received responses from two of the peer reviewers.

We reviewed comments received from the peer reviewers for substantive issues and new information regarding the status of the DFS. The peer reviewers generally concurred with our methods and conclusions and considered the scientific information to be correct and the analyses to be sound. However, both reviewers identified parts of the document that could be strengthened. Peer reviewer comments are addressed below and incorporated as appropriate into the final rule or supplemental documents, available at <http://www.regulations.gov> under Docket No. FWS–R5–ES–2014–0021.

(12) *Peer Review Comment:* Both reviewers asked for more detail to be provided on life history of the subspecies.

Our Response: We have added more life-history information in a supplemental document for the final rule, particularly life history related to reproduction, litter size, and survival. The supplemental document is available at <http://www.regulations.gov> under Docket No. FWS–R5–ES–2014–0021.

(13) *Peer Review Comment:* One reviewer asked for clarification on the length of time that agreements preventing development on private lands would continue.

Our Response: The private lands we consider protected from development have easements that extend in perpetuity, and this has been added to the text of this rule.

(14) *Peer Review Comment:* Both reviewers thought that the rate of future development might be underestimated and suggested possibly using zoning or projected road development as additional sources of information.

Our Response: We consider the analysis of future development conducted by the Maryland Department of Planning to be the best available source of information on development trends insofar as this office has both the responsibility for tracking such information and the requisite expertise to make trend projections. The September 23, 2014, proposed rule (79 FR 56686) and 2012 status review (USFWS 2012) used data from Maryland's 2008 planning report (Maryland Department of Planning 2008a), as this was the most current information at the time; the same trends and areas of expected development are also mapped in a more recent planning document (Maryland Department of Planning 2011a). The data continue to show that the eastern shore of Maryland is far more rural, with less development and more protected lands, than elsewhere in Maryland. Thus, the most recent information continues to support the past and future trends used in our previous analysis.

Consideration of zoning was not included in our analysis specifically because zoning restrictions can be changed, making projections based on this source of

information less certain. Further, we took a cautious approach in considering future development by projecting complete loss of any DFS-occupied habitat within a “Smart Growth” area that was not otherwise protected. (“Smart Growth” is a theory of land development that concentrates new development and redevelopment in areas that have existing or planned infrastructure to avoid sprawl.) Currently, DFSs inhabit blocks of forest within the Smart Growth areas of both Cambridge and Easton in Maryland. Although limited monitoring shows that DFSs have been persisting in these woodlands over many years and may be able to continue doing so in the future, our analysis assumes loss based on lack of ensured habitat protection.

(15) *Peer Review Comment:* One peer review comment referred to the possibility of residential development causing problems because of the presence of free-ranging dogs that may pursue the DFS.

Our Response: We agree that this can be a problem in some situations, and although all counties within the current range of the DFS have regulations that require dogs to be on a leash, at heel, or directly beside the owner, enforcing these regulations can be difficult. Further, as noted in the status review (USFWS 2012, p. 27), the presence of dogs may be one reason DFSs do not inhabit residential developments. Despite these concerns, we do not consider free-roaming dogs to be a threat that would result in population-level effects, either individually or in combination with other possible risks, to this subspecies, as effects are highly localized and regulations do exist

to enable management of this issue.

(16) *Peer Review Comment:* Both peer reviewers raised a concern regarding the commitment to monitoring of the DFS after delisting and questioned whether there would be long-term funds, time, and available personnel to carry out the monitoring work described in the post-delisting monitoring plan.

Our Response: We agree that sustaining monitoring efforts can be challenging and subject to competing priorities. Nonetheless, we have designed the post-delisting monitoring strategy to fit into current work plans and are seeking additional ways in which this effort can be incorporated into other monitoring work conducted by the States. For example, the hunt clubs leasing the Maryland State Chesapeake Forest lands are now asked to report sightings or camera shots which have already provided DFS records, and we are working with the States on other opportunities to invite hunters to report DFS sightings. We also anticipate that DFS-occupied sites managed by conservation groups will be monitored as part of their management efforts; sightings of DFSs are often reported by those who live or work on these properties. Overall, recording these sightings will enhance our ability to conduct widespread monitoring of the DFS.

Recovery

Section 4(f) of the Act directs us to develop and implement recovery plans for the

conservation and survival of endangered and threatened species unless we determine that such a plan will not promote the conservation of the species. Recovery plans are not regulatory documents and are instead intended to establish goals for long-term conservation of a listed species; define criteria that are designed to indicate when the threats facing a species have been removed or reduced to such an extent that the species may no longer need the protections of the Act; and provide guidance to our Federal, State, and other governmental and nongovernmental partners on methods to minimize threats to listed species. There are many paths to accomplishing recovery of a species, and recovery may be achieved without all criteria being fully met. For example, one or more criteria may have been exceeded while other criteria may not have been accomplished, yet the Service may judge that, overall, the threats have been minimized sufficiently, and that the species is robust enough to reclassify or delist the species. In other cases, recovery opportunities may have been recognized that were not known at the time the recovery plan was finalized. These opportunities may be used instead of methods identified in the recovery plan.

Likewise, information on the species that was not known at the time of the recovery plan may become available. The new information may change the extent that criteria need to be met for recognizing recovery of the species. Recovery of species is a dynamic process requiring adaptive management that may, or may not, fully follow the guidance provided in a recovery plan.

Despite the guidance provided by recovery plans, determinations to remove species from the List must be made in accordance with sections 4(a)(1) and 4(b) of the Act. Section 4(a)(1) requires that the Secretary determine if a species is endangered or threatened because of one or more of five threat factors. Section 4(b) of the Act requires that the determination be made “solely on the basis of the best scientific and commercial data available.”

Although recovery criteria, as mentioned above, help guide recovery efforts and should always be consulted when considering a change in the status of a listed species, the ultimate determination of whether to reclassify or delist a species must be made in accordance with statutory standards, and recovery criteria can neither substitute for nor pre-empt section 4(a)(1) requirements. Ultimately, a decision to remove a species from the List is made when the best available data show that the species is no longer an endangered species or a threatened species, regardless of how closely this information conforms to the information and criteria in the recovery plan.

The most recent DFS recovery plan was approved by the Service on June 8, 1993 (USFWS 1993, entire), and updated on October 31, 2003 (USFWS 2003, entire). The plan states that “the long-range objective of the DFS recovery program is to restore this endangered species to a secure status within its former range.” The plan provides three criteria for reclassifying the DFS from endangered to threatened status. It then provides four additional criteria to be considered in conjunction with the first three for delisting the

DFS.

Recovery Criteria

A discussion of the extent to which each recovery criterion has been met is provided in the proposed rule (79 FR 56686; September 23, 2014). This discussion is summarized below.

Criterion 1: Ecological requirements and distribution within the remaining natural range are understood sufficiently to permit effective management. A considerable body of new information has been amassed regarding the DFS' distribution and ecological requirements, and we thus conclude that this recovery criterion has been met. The six key contributions to our understanding of the DFS are summarized below.

(1) DFS range and distribution: The geographic information system (GIS) maintained for the DFS documents a significant increase in the area occupied by the DFS since the 1993 recovery plan was issued (see Figure 1, above). Records of DFS sightings by knowledgeable observers and, in particular, the use of trap and camera surveys have greatly improved our ability to determine which forest tracts are occupied by the DFS and monitor continued presence.

(2) Population persistence: Persistence of DFS populations over the recovery period has been evaluated through comparison of occupancy over time, including a

survey conducted in 1971 and repeated in 2001, and a second analysis comparing occupancy from 1990 through 2010 (Table 2). These studies are summarized in the proposed rule (79 FR 56686; September 23, 2014) and status review (USFWS 2012, pp. 15–17).

Table 2. DFS occupancy of 275 forested tracts (41,733 ha or 103,125 ac) in Maryland, 1990 compared to 2010.

Occupancy change from 1990 to 2010	Area of forest	Number of forest tracts	Percent of the original 41,733 ha (103,125 ac) in each occupancy status
Persistence	38,130 ha (94,221 ac)	181	91
Extirpations	499 ha (1,233 ac)	7	1
Uncertain	3,104 ha (7,671 ac)	87	8
Discoveries or colonizations	13,042 ha (32,227 ac)	250	—

As indicated in Table 2, DFSs continued to persist in the vast majority of woodlots where they were known to occur in 1990, and their presence was newly documented in an additional 13,042 ha (32,227 ac) in all three States through 2010 (USFWS 2012, p. 8). Although some of these discoveries are likely to be occurrences that were previously present but undetected, anecdotal information indicates that several new localities represent true range expansion (see, for example, USFWS 2012, figure 4). Using the 2010 figures for occupied forest in all three States, as well as maps of mature forest and density estimates of the DFS available from various studies, we estimate that

the total population of the DFS is now about 20,000 animals across an expanded range (USFWS 2012, p. 21).

(3) Population viability: A DFS population viability analysis (PVA) developed by Hilderbrand et al. (2007, entire) modeled the extinction probabilities of different-sized populations and determined that a population with 65 females, or 130 animals total, had a 95 percent chance of persisting for 100 years. This value, also called a minimum viable population (MVP), was used to gauge extinction risk by projecting how many populations of this size are likely to remain present in a given portion of the current DFS range (USFWS 2012, pp. 18–20; also see *Public Comments*, above).

The PVA also estimated that 75 percent of a given DFS population would have the ability to disperse to areas within 4 km (2.5 mi) (Hilderbrand et al. 2007, p. 73), and thus animals in forested tracts within this distance would be likely to interbreed; these interbreeding groups are defined as subpopulations. The analysis indicated that approximately 85 percent of DFSs are found in four large, narrowly separated subpopulations that could expand to become even more connected. Each of these subpopulations contains populations estimated to be several times the MVP minimum and have a high likelihood of population persistence. Overall, the rangewide population, estimated at between 17,000 and 20,000 animals, contains more than 100 times the MVP.

(4) Effects of timber harvest: Two major studies of the effects of timber harvest

on the DFS (Paglione 1996, entire; Bocetti and Pattee 2003, entire) suggest that the subspecies is fairly tolerant of timber harvest, although specific impacts depend on the size, location, and landscape context of the harvest. Small clearcuts within a surrounding forest showed relatively little impact on the DFS, with individual squirrels shifting their home ranges into adjacent habitat, whereas harvest of more isolated forest peninsulas forced DFSs to move greater distances (Paglione 1996). Findings from the long-term Bocetti and Pattee (2003) study lead to the general conclusion that the DFS can tolerate timber harvests and can continue to occupy forested mosaics of mature and regenerating stands. In addition, both studies suggest that the DFS has high site fidelity and tends to shift home ranges rather than abandon a site in response to disturbance.

(5) Habitat availability: An analysis of LiDAR data provided by the State of Maryland enabled an inventory of mature forest suitable for the DFS throughout most of the squirrel's range (USFWS 2012, Appendix E). As of 2004, LiDAR mapping had identified 175,656 ha (434,056 ac) of mature forest in the eight Maryland counties occupied by DFSs (55 percent of all forest was considered mature), with 17 percent currently occupied and thus over 80 percent of mature forest available for expansion (USFWS 2012, table 4).

Although the amount and location of mature forest will change over time with timber harvest and forest growth, these data provide good baseline information about the availability and distribution of suitable habitat. Mature forest is often found in riparian

zones (USFWS 2012, figure 8) that can provide connected habitat for DFS dispersal and colonization of new areas. LiDAR mapping also showed large tracts of mature forest distributed in upland areas throughout the Maryland portion of the subspecies' range. Given that most DFS populations occur in Maryland and, further, that unoccupied but suitable habitat is found both along the coast and inland elsewhere on the Delmarva Peninsula, we can infer from this habitat inventory that there is ample unoccupied mature forest to enable further expansion of the DFS' rangewide population.

(6) Habitat connectivity: Lookingbill et al. (2010, entire) conducted a GIS analysis of the connectivity between 400-ha (175-ac) forest patches on the Delmarva Peninsula (although the DFS is not a forest interior obligate and does not require forest blocks this large). Study results show high connectivity of forest blocks in the southern Maryland portion of the squirrel's range, indicating few obstacles to DFS dispersal throughout this area. Two major forest corridors were identified for DFS dispersal out of Dorchester County, Maryland, one of which is already occupied by the DFS (a third dispersal corridor not identified by the model is also DFS-occupied). Observations of DFS movement through a wide range of habitats, in conjunction with the results of this connectivity model and the map of LiDAR-defined mature forests, indicate that there is sufficient habitat availability and connectivity for further DFS range expansion.

Criterion 2: Benchmark populations are shown to be stable or expanding based on at least 5 years of data. Criterion 2 was intended to measure overall DFS population

trends using monitoring data from seven benchmark populations. Although a slightly different set of eight benchmark sites was ultimately monitored, analysis of the resulting data (Dueser 1999, entire) showed that the benchmark sites were stable over a 5- to 7-year period, and benchmark monitoring was concluded.

We also have collected data to better understand rangewide population trends. The distribution data that document an expanded range and population persistence within that range as described under criterion 1, above, are much better indicators of DFS recovery. Although DFS populations in isolated areas (such as on small islands) are vulnerable to extirpation, all available population data for the DFS indicate that the range has expanded and populations are persisting within the range, and that this recovery criterion has been met.

Criterion 3: Ten translocated colonies are successfully established throughout the historical range. This criterion requires that at least 10 new DFS colonies must show evidence of presence for at least 5 to 8 years after release, demonstrating the ability of the DFS to colonize new sites, whether naturally or through management.

Post-release trapping results (Therres and Willey 2002, entire), along with more recent trapping and camera surveys, indicate continued presence of 11 of 16 translocated colonies (69 percent) for more than 20 years (USFWS 2012, table 1, p. 83). Further, in several of these areas, DFSs have dispersed well beyond the initial release site.

This success rate is higher than is typically found for similar translocation efforts for other endangered species (see Fischer and Lindenmayer 2000, p. 5), although the success rate is generally higher for mammals and wild source populations (Wolf et al. 1996, p. 1146). Further, despite some initial concerns about the genetic diversity of the translocated populations, subsequent analysis indicated that their genetic diversity was comparable to that of their source populations (Lance et al. 2003, entire). These data indicate that this criterion has been met.

Criterion 4: Five additional (post-1990) colonies are established outside of the remaining natural range. Criterion 4 requires discovery or establishment of colonies outside the range known at the time of the 1993 recovery plan, thus addressing the threat of range contraction and providing for additional population redundancy as one component of long-term species viability.

By 2007, eight new populations had been identified that did not result from translocations (USFWS 2007, figure 2), expanding the range toward the east. Notably, a colony discovered in Sussex County, Delaware, represents the first population found in that State since the time of listing that was not a result of a translocation. Since 2007, additional occupied forest has been discovered between some of these new populations, thus improving their long-term likelihood of survival (USFWS 2012, figure 3). We therefore conclude that this recovery criterion has been met.

Criterion 5: Periodic monitoring shows that translocated populations have persisted over the recovery period. Criterion 5 requires the continued presence of at least 80 percent of translocated populations, with at least 75 percent of these populations shown to be stable or improving. All successfully established translocated populations have persisted over the full period of recovery and have either become more abundant on their release sites or have expanded or shifted into new areas, as shown by trapping efforts (Therres and Willey 2002, entire), and, more recently, both trapping and/or camera surveys (USFWS 2012, table 1). Overall, the continued presence and growth of DFS populations at translocation sites show that this recovery criterion has been met.

Criterion 6: Mechanisms that ensure perpetuation of suitable habitat at a level sufficient to allow for desired distribution are in place and implemented within all counties in which the species occurs. Several well-established programs protect DFS habitat from development in perpetuity (Rural Legacy, Maryland Environmental Trust, Maryland Agricultural Programs, etc.). These programs, along with State and Federal ownership, protect an estimated 15,994 ha (39,524 ac; 29 percent) of DFS-occupied forest throughout the subspecies' current range (USFWS 2012, table 3). In addition, several State laws and regulatory programs will continue to protect forest habitat (USFWS 2012, appendix D). In Delaware and Virginia, the DFS occurs primarily on Federal and State land; the sole Virginia population was established on Chincoteague NWR and is completely protected from residential development or commercial timber

harvest. Overall, we conclude that this recovery criterion has been met.

Criterion 7: Mechanisms are in place and implemented to ensure protection of new populations, to allow for expansion, and to provide inter-population corridors to permit gene flow among populations. As discussed under recovery criterion 1, LiDAR data indicate that mature forest blocks connected by riparian corridors are scattered throughout the Delmarva Peninsula. Further, Lookingbill et al. (2010, entire) indicate that these connected blocks constitute a good network of forest to allow for dispersing DFSs. Given ample opportunities for dispersal, and the fact that many of these corridors are protected by State regulatory mechanisms (as discussed under *The Inadequacy of Existing Regulatory Mechanisms*, below), we conclude this recovery criterion has been met.

Summary of Factors Affecting the Species

Overview

Section 4 of the Act and its implementing regulations (50 CFR part 424) set forth the procedures for listing species, reclassifying species, or removing species from listed status. “Species” is defined in section 3 of the Act as any species or subspecies of fish or wildlife or plants, and any distinct vertebrate population segment of fish or wildlife that interbreeds when mature (16 U.S.C. 1532(16)). A species may be determined to be an endangered or threatened species based on one or more factors described in section

4(a)(1) of the Act: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence.

We must consider these same factors in delisting a species, and we must show that the best available scientific and commercial data indicate that the species is neither endangered nor threatened because: (1) It is extinct; (2) it has recovered and is no longer endangered or threatened (as is the case with the DFS); and/or (3) the original scientific data used at the time of listing classification were in error (50 CFR 424.11(d)).

Determining whether a species is recovered requires evaluation of both the threats currently facing the species and the threats that are reasonably likely to affect the species in the foreseeable future following delisting and removal or reduction of the Act's protections.

A species is endangered for purposes of the Act if it is in danger of extinction throughout all or a significant portion of its range (SPR) and is threatened if it is likely to become endangered within the foreseeable future throughout all or a significant portion of its range. The word "range" in these definitions refers to the range in which the species currently exists. Although the term "foreseeable future" is left undefined, for the purposes of this rule, we regard foreseeable future as the extent to which, given available

data, we can reasonably anticipate events or effects, or extrapolate threat trends, such that reliable predictions can be made concerning the future status of the DFS. In conducting this analysis, our general approach was to review past threat trends and the DFS' response, followed by a prediction of future trends. With some exceptions, we used a time frame of approximately 40 years for both past and future trend analyses; this time period also allowed use of available data to make more reliable projections despite the inherent uncertainties attached to predicting the future.

In the following five-factor analysis, we evaluate the status of the DFS throughout its entire range. We then address the question of whether the DFS is endangered or threatened in any significant portion of its range. Note that information discussed in detail in the September 23, 2014, proposed rule (79 FR 56686) and/or the 2012 status review (USFWS 2012, pp. 26–44) is summarized for each factor below.

Factor A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

Here we considered habitat changes caused by residential development, sea level rise, and commercial timber harvest, as well as the habitat-related effects on DFS population and rangewide viability, with the exception of development or timber harvest effects on the population on Chincoteague NWR, as it is completely protected from these activities; we did, however, address the impact of sea level rise on this population.

Habitat Loss Due to Development

The Delmarva Peninsula is basically a rural landscape, but the human population has increased since the DFS was listed, as shown by Maryland Department of Planning data discussed in the September 23, 2014, proposed rule (79 FR 56686) (see Maryland Department of Planning 2008a, 2008b, and 2011b). Despite the past—and continuing—growth, the majority of the Delmarva Peninsula’s land base remains rural, with approximately 47 percent agricultural land, 36 percent forest, 9 percent wetlands, and only 7 percent developed land (USFWS 2012, table 2).

Further, since listing, a variety of State laws and programs have been put in place to counteract the rate of development across the State (USFWS 2012, appendix D), including the Maryland Forest Conservation Act and Maryland Critical Area Law. In addition, the Maryland Environmental Trust, Maryland Agricultural Land Protection Fund, and Maryland Rural Legacy Program used easements to permanently protect about 3,642 ha per year (9,000 ac per year) of private lands between 2000 and 2008, enhancing protection of DFS habitat (USFWS 2012, chart 4).

Overall, approximately 30 percent of DFS-occupied forest lands, widely distributed across the subspecies’ range, is protected from development (USFWS 2012, table 5). Additional acres of protected forest outside the current range of the DFS provide areas for further expansion (USFWS 2012, figure 7). Overall, the 15,995 ha

(39,524 ac) of occupied forest protected from development could support a DFS population 45 times the MVP (based on Hilderbrand et al. 2007, entire). However, because 70 percent of DFS-occupied forest occurs on private land that remains legally unprotected from development, future losses from development are likely.

We assessed the potential threat of DFS habitat loss stemming from future development by overlaying the acres of existing occupied forest with areas projected to be lost to development, including: (1) Smart Growth areas (excluding the acres that are protected by easement), (2) areas where development projects are already planned, and (3) areas that are projected to be lost by 2030 if Smart Growth policies are not implemented (USFWS 2012, figure 11). Overall, 3 percent (2,283 ha or 5,643 ac) of the forest area currently occupied by the DFS is anticipated to be lost to development by 2030. This relatively low rate of projected loss can be attributed to the likelihood that most future development on the Delmarva Peninsula will occur outside the current range of the DFS. Future development within the current range is expected to primarily affect two small, isolated DFS subpopulations where extirpation is already probable. Together these subpopulations constitute less than 0.5 percent of the total viable population; thus, their loss would have a negligible effect on the rangewide extinction risk for the DFS. Although information on development projections past 2030 is not available at this time, we consider it likely that development on the Delmarva Peninsula will continue to be concentrated near large towns outside the range of the DFS, with some scattered development within the subspecies' range.

Conversely, we also anticipate continued expansion of DFS populations, including expansion onto Chesapeake Forest lands (which are now owned and managed by the State of Maryland), noting that some occupancy on these lands has already occurred. The anticipated discovery of additional occupied forest areas may further offset projected loss of occupied forest due to development, resulting in little change to the overall area of the distribution. Discovery of additional occupied forest has occurred at the rate of 763 ha per year (1,887 ac per year) over the past 10 years. Even if we discover new occupied forest at half that rate, the anticipated net loss of occupied habitat from development would be offset by known occupied habitat in 6 years. With the continued protection of forest lands provided by State laws and programs, we do not expect habitat loss from development to substantially elevate the risk of the DFS' extinction.

Loss of Forest Habitat from Sea Level Rise

The Delmarva Peninsula is a low-lying landform, and sea level rise in the Chesapeake Bay can flood and kill shoreline forests that provide habitat for the DFS. However, the DFS does not occur exclusively in coastal habitats, which moderates its vulnerability to this threat, and GIS analysis indicates that over 80 percent of the current range would remain even after a projected inundation of coastal areas by 0.61 m (2 ft); see the discussion below.

Regarding sea level rise in the past, the forces of land subsidence and sea level rise have resulted in a long history of island loss and formation in the Chesapeake Bay. In the last century, these forces combined to produce a relative sea level rise in the Chesapeake Bay region of approximately 0.3 m (1 ft) per 100 years (National Wildlife Federation 2008, p. 2).

Loss of some forest areas in southern Dorchester County, Maryland, is already apparent at the lowest elevations where trees have been killed by saltwater intrusion from recent hurricanes. Although we cannot precisely estimate how much occupied habitat has been lost in the past 40 years, LiDAR analysis of forest height and canopy cover has identified at least 68 ha (170 ac) at the edge of coastal marshes that are now standing dead trees.

Hurricanes contribute to forest loss as sea levels rise, with saltwater moving farther into forested areas during associated storm surges. However, hurricanes and intense storms have always been part of the weather in this region, and there is no evidence that they pose a problem *per se* for the DFS. For instance, in October 2012, cameras placed in woods to monitor DFSs near the Atlantic coast recorded DFSs onsite after superstorm Sandy passed through, indicating survival through the storm. Although direct loss of trees used by the DFS may have occurred in the past, the major effect of hurricanes has been the additional push of saltwater into more upland areas, killing coastal forest trees.

In terms of future effects of sea level rise and climate change, sea level rise in the Chesapeake Bay is certain to continue, and the rate of change is likely to be even higher than in the past (National Wildlife Federation 2008, pp. 16–17; Sallenger et al. 2012, entire; Boesch et al. 2013, entire). To determine the extent of DFS-occupied forest that may be lost through the combined effects of sea level rise and subsidence (i.e., relative sea level rise), we used a 0.61-m (2-ft) inundation scenario. A rise in sea level of this magnitude is predicted to occur by about 2050 under a worst-case scenario (Boesch et al. 2013, p. 15).

Our GIS analysis, in which we overlaid this inundation scenario with DFS-occupied forest, indicated that the most severe effects of sea level rise on the DFS by 2050 will be seen in the southwestern portion of Dorchester County, Maryland (USFWS 2012, figure 12). Here, 9,332 ha (23,060 ac) of currently occupied forest would either be lost or remain only on isolated islands (USFWS 2012, figure 12). In addition, 4,409 ha (10,897 ac) of habitat along the remaining southern edge of the county would eventually deteriorate, causing DFSs to move inland. The ability of DFSs to move into connected habitat likely reduces the effects on this subspecies due to forest losses at the coastal marsh fringe; we nonetheless recognize this as habitat loss. Other projected forest losses include scattered patches throughout the range, including some losses in the range of the Chincoteague population (USFWS 2012, figure 12).

Even if the predicted habitat losses from sea level rise in southwestern Dorchester County were to occur immediately, the area's remaining 23,632 ha (58,398 ac) of occupied habitat would continue to support a highly abundant DFS population with a negligible risk of extinction. Moreover, the habitat in the northeastern portion of this area is connected to existing occupied forest farther inland (USFWS 2012, figure 9) into which DFSs could move. In particular, a large tract of State-owned forest that will soon become sufficiently mature to allow for DFS expansion connects the Dorchester DFS subpopulation to forest tracts in Caroline and Sussex Counties (USFWS 2012, figure 10). Although sea level rise may cause streams and rivers to widen and pose more of a barrier in the future, forested corridors will still be available to provide DFSs with access to habitat in the inland portions of Dorchester County.

Given our current understanding of DFS habitat use, dispersal, and population dynamics, the expected DFS response to deterioration of coastal woodlands from sea level rise is the gradual movement of some DFSs to more inland areas. The DFS is known to travel across areas of marsh and can move at least 40 to 50 m (131 to 164 ft) between forested islands and may also move across frozen marsh in the winter. We acknowledge that despite the squirrel's ability to move, isolation and loss of some individuals is likely to occur. Nonetheless, we conclude that habitat loss due to sea level rise will not be a limiting factor to the future viability of this subspecies.

The 0.61-m (2-ft) inundation scenario does not play out the same in parts of the

range outside southwestern Dorchester County. In the series of small peninsulas in northwestern Dorchester County called the “neck region,” this scenario results in shrinkage of available habitat but does not create islands, and leaves habitat for the DFS to move into (USFWS 2012, figure 12). This is also the case in other portions of the squirrel’s range near the Chesapeake Bay and the Atlantic Coast. Some additional small areas of occupied habitat may be lost, but the gradual loss can be accommodated by shifts in DFS home ranges to adjacent but currently unoccupied habitat.

The most coastal population of the DFS is a translocated population introduced in 1968 to Chincoteague NWR, a barrier island in Virginia that could be severely affected by sea level rise (National Wildlife Federation 2008, p. 69). The refuge’s draft Comprehensive Conservation Plan (available at <http://www.fws.gov/nwrs/threecolumn.aspx?id=2147550165>) addresses this issue, and the refuge may consider future land acquisitions on the Delmarva Peninsula mainland. Chincoteague NWR will continue to manage for the DFS into the future whether or not the subspecies remains listed. In addition, translocations of DFSs to areas outside refuge boundaries at some point in the future are possible.

It is not clear how climate change effects may alter the nature of the forests of the Delmarva Peninsula. However, as the DFS occurs in pine, hardwood, and mixed hardwood forests, with a preference for mixed forests with diverse tree species, any effects on the species composition of these forests are unlikely to become a significant

threat for the squirrel.

Overall, DFS distribution has increased in the past 40 years even with some sea level rise occurring. In the next 40 years under a worst-case scenario, we predict some deterioration of forests in certain areas along the Chesapeake Bay and the Atlantic Coast (USFWS 2012, figure 12), but we also anticipate population expansion and shifts in DFS home ranges into suitable but currently unoccupied habitat available in the interior of the Delmarva Peninsula. Although some concern has been expressed about the likelihood of such expansion (e.g., by the Center for Biological Diversity 2013), the analysis of habitat suitability, connectivity, and the range expansion documented in the last 15 years provides a rational basis for this expectation. Thus, available data indicate that loss of habitat due to climate change and sea level rise does not pose an extinction risk to the DFS.

Combined Effects of Development and Sea Level Rise

Having determined that neither development nor sea level alone threatens the DFS with rangewide extinction, we conducted a spatial analysis to examine how these most pervasive stressors might interact (USFWS 2012, figure 5 and table 7).

As of 2010, 54,429 ha (134,496 ac) of habitat supported 22 DFS subpopulations, (USFWS 2012, table 7), and 95 percent of the occupied forest contains the 11 largest

subpopulations, which are highly likely to remain demographically viable. Even with projected losses from both development and sea level rise, and not accounting for potential discovery of additional occupied habitat, over 95 percent of the DFS-occupied forest would continue to support these most viable subpopulations. Thus, the combined effects of these threats do not pose an extinction risk to the DFS.

Loss of Mature Forest from Timber Harvest

Unlike development and sea level rise, timber harvest does not result in permanent loss of habitat. Further, as noted under *Recovery Criteria*, above, DFSs are resilient to timber harvests when there is adjacent habitat into which they can move. Thus, the major habitat concerns related to timber harvests are (1) the prevalence of short-rotation timber harvests, where trees are harvested before they mature enough to become DFS habitat; and (2) harvest rates that exceed growth rates and result in a continual decline of mature forest.

Short-rotation pine forestry involves harvesting stands at approximately 25 years of age for pulp and other fiber products, precluding their suitability as DFS habitat. In the past, two large corporations managed for short-rotation pine on the Delmarva Peninsula; however, these industries have effectively left the Peninsula. In 1999, the State of Maryland acquired 23,471 ha (58,000 ac) of these lands, collectively administered as the Chesapeake Forest Lands and comprising scattered parcels

throughout the southern four Maryland counties (USFWS 2012, figure 13). Another 4,202 ha (10,384 ac) of forest land previously owned and managed for short-rotation pine are now owned by the State of Delaware. All these lands will now be protected from development and managed for sustainable sawtimber harvest and wildlife habitat objectives. Moreover, DFS management has been integrated into the Sustainable Forest Management Plan for Chesapeake Forest Lands prepared by Maryland's Department of Natural Resources (Maryland DNR 2013, pp. 92–96), which identifies a total of 17,618 ha (43,535 ac) as DFS Core Areas and DFS Future Core Areas. Overall, these land acquisitions represent a future of protected forest areas managed for sawtimber where the DFS can survive and grow in numbers, substantially removing the threat posed by short-rotation pine management on the lower Delmarva Peninsula.

Harvest rate estimates for both the 2007 and 2012 status review (USFWS 2007, pp. 17–20; USFWS 2012, table 6) indicated that harvests in more recent years have been substantially less than in previous years (generally prior to 2005) (USFWS 2012, table 6). For instance, in the four southern Maryland counties, the average annual harvest dropped from approximately 1,050 ha (2,594 ac) prior to 2005, to approximately 303 ha (749 ac) since then. The average size of harvested stands in these counties has also decreased, from an average of 22 ha (54 ac) to an average of 15 ha (36 ac). This is also the case in Delaware; in Sussex County, the annual harvest rate in the last 4 years was half of what was generally harvested between 1998 and 2005, with the same holding true for the size of individual harvest areas.

Among other reasons for these reductions, economic pressures have resulted in the closure of several sawmills on the Delmarva Peninsula. The market for timber has declined dramatically, with low prices acting as a disincentive to harvesting. As discussed below, reduced harvest levels are likely to continue in the future.

Although it is very difficult to predict future market forces, trends in fragmentation and parcelization in the Chesapeake Bay region (Sprague et al. 2006, pp. 22–24) suggest that future timber harvests might remain smaller in size and occur less frequently. Parcelization is the subdivision of large blocks of land into multiple ownerships, with a consequent tendency to shift from forest management to management for aesthetics and wildlife values. In Maryland, 45 percent of woodland owners own less than 20 ha (50 ac) of woods (U.S. Department of Agriculture, 2012). Given general sizes of timber harvests, these woodlands may be too small for future harvests and are more likely to be managed for aesthetics and wildlife.

This ownership pattern also reflects the gentrification of the eastern shore of Maryland, with landowners becoming less likely to be farmers or foresters and more likely to be commuters or retirees who do not use their properties for income. This trend is expected to continue into the future (see http://www.mdp.state.md.us/msdc/S3_Projection.shtml), with a concomitant reduction in total acres harvested.

Overall, the forest land transfers in Maryland and Delaware, in conjunction with available data on harvest rates across the range of the squirrel, suggest that timber harvest does not pose an extinction risk for the DFS.

Factor A Summary

The current range of the DFS spans coastal and interior areas of the Delmarva Peninsula where DFSs inhabit diverse wetland and upland forest types, suggesting that DFS populations will continue to remain resilient to a variety of habitat-related effects. Further, the distribution of these habitats provides for redundancy of populations, which reduces the risk of catastrophic loss. We recognize that habitat losses may occur in some areas, primarily from residential development and sea level rise, but we expect the DFS population to remain at or above recovered levels, and, moreover, we do not expect such habitat losses to prevent overall expansion of the range in the future.

Factor B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Overhunting has been posited as a factor in the original decline of this subspecies. Squirrel hunting was common in the early and middle decades of the 20th century, and hunting of the DFS in small, isolated woodlots or narrow riparian corridors could have resulted in local extirpations. Taylor (1976, p. 51) noted that the DFS remained present on large agricultural estates where hunting was not allowed, suggesting that these areas

may have provided a network of refugia for the DFS.

By 1972, hunting of DFS was banned through state regulations. Removal of hunting pressure may have been one factor in the renewed population growth and expansion of the squirrel's range to its current extent. Coincidentally, squirrel hunting has declined in popularity in recent decades; nationwide, squirrel hunting declined by about 40 percent between 1991 and 2001, and by an additional 20% between 2001 and 2011 (DOI 1991 p. 70; DOI 2001, p. 57; DOI 2011, p. 60). Recent records of squirrel hunters specifically are not available for Maryland but the number of small game hunters in Maryland (pursuing squirrels, rabbits and/or quail) declined from 64,000 to 35,000 between 1991 and 2011 (DOI 1991, p. 113; DOI 2011, p. 102). Hunting gray squirrels will continue to some extent, and though some hunters may mistake DFS for gray squirrels, this is likely a rare situation that has not prevented the DFS from expanding over the last 40 years.

Regarding hunting in the future, discussions with our State partners indicate that DFS management after delisting would be conducted very cautiously and that a hunting season would not be initiated in the immediate future. We recognize that a restricted hunt could be conducted at sites where DFSs are abundant without causing a population decline, and that State management agencies have the capability to implement careful hunting restrictions and population management; the reopening of the black bear (*Ursus americanus*) hunt in Maryland is a good example of a carefully and successfully managed

hunt (Maryland Department of Natural Resources 2012, entire).

We nonetheless foresee only limited individual interest in reinitiating a DFS hunt, coupled with strong public attitudes against hunting DFSs and, more generally, recreational hunting (Duda and Jones 2008, p. 183). Given public sentiment, the declining interest in squirrel hunting, and the restrictions that we expect would be imposed on a renewed hunting program, hunting is highly unlikely to pose an extinction risk to the DFS in the foreseeable future.

Factor C. Disease or Predation

Each of these types of threat is summarized below.

Disease

Reports of disease in the DFS are uncommon. Although other subspecies of eastern fox squirrels are known to carry diseases such as mange and rabies, there is no documentation of these diseases in the DFS, and there is no evidence or suspicion of disease-related declines in any local population (USFWS 2012, pp. 37–38).

Although the advent of white-nose syndrome affecting bats (Blehert et al. 2009, entire) and chytrid fungus affecting amphibians (Daszak et al. 1999, entire) demonstrates the uncertainty surrounding novel disease events, the life-history traits of the DFS tend to make them less susceptible to these types of epizootics. Delmarva fox squirrels do not congregate in large numbers where disease can easily spread through a population.

Further, the DFS is patchily distributed across its range, which makes it more difficult for disease to spread across populations, and DFSs are not migratory and do not inhabit the types of environment (as with aquatic species) where pathogens can readily disperse.

Overall, there currently is no evidence of disease-related declines or any indication that DFSs are particularly susceptible to disease outbreaks, and we conclude that disease is neither a current nor a future extinction risk for this subspecies.

Predation

Predators of the DFS include the red fox (*Vulpes vulpes*), gray fox (*Urocyon cinereoargenteus*), red-tailed hawk (*Buteo jamaicensis*), bald eagle (*Haliaeetus leucocephalus*), and possibly domestic pets and feral animals.

Changes in numbers of certain predators may cause some fluctuations in DFS numbers at a site (for instance, a DFS population may decline when red fox numbers increase), but these types of events are sporadic and localized. Conversely, although bald eagle numbers have dramatically increased in the Chesapeake Bay region over the past 40 years and eagles have been known to take DFSs, they still prey primarily on fish. And while feral dogs and cats may occasionally take DFSs, such predation is not a rangewide threat. The DFS population has increased over the last 40 years despite ongoing predation, and we conclude that predation at these levels is not a current or future extinction risk for this subspecies.

Factor D. The Inadequacy of Existing Regulatory Mechanisms

Several laws established in Maryland over the past 40 years provide substantial protections for DFS habitat (USFWS 2012, appendix D). The Maryland Critical Areas Act of 1984 designates all areas within 304.8 m (1,000 ft) of high tide as Critical Areas and, as amended, prohibits development and forest clearing within 60.96 m (200 ft) of streams and the Chesapeake Bay. These areas serve as both breeding habitat and dispersal corridors for DFSs. The Maryland Forest Conservation Act of 1991 requires that when a forested area is cleared and converted to other land uses, other forest areas must be protected in perpetuity or, alternatively, replanted to offset these losses. Additionally, the State-implemented portions of the Clean Water Act (33 U.S.C. 1251 et seq.) provide rangewide protection to the many forested wetlands where DFSs occur.

Several State programs in Maryland, including its Agricultural Land Protection Fund, Environmental Trust, and Rural Legacy Program, encourage voluntary conservation easements that protect lands from development. Collectively, these programs now protect 79,066 ha (195,377 ac) of private lands within the DFS' range. Similar programs in Delaware protect an additional 12,677 ha (31, 327 ac) in Sussex County (USFWS 2012, table 3).

Although in Delaware and Virginia the DFS occurs primarily on Federal and State lands, regulatory protections affecting private lands allow for continued DFS range

expansion. For example, Delaware's Agricultural Land Protection Program and Forest Legacy Program now protect more than 12,677 ha (31, 327 ac) in Sussex County, much of which is or could be occupied by the DFS. The Virginia DFS population is completely protected on Chincoteague NWR. If needed, State-owned lands or private lands, or both, protected by land trusts would provide suitable habitat for future translocations.

Overall, many State laws and programs that protect the DFS and its habitat have been enacted or strengthened in the last 40 years, and it is likely that this State protection will continue. Currently, these regulatory mechanisms, together with other factors that address population and habitat trends, have substantially reduced threats to the DFS. We thus conclude that existing regulatory mechanisms are adequate in terms of reducing extinction risks for the DFS.

Factor E. Other Natural or Manmade Factors Affecting Its Continued Existence

The level of risk posed by each of the following factors is assessed below.

Forest Pest Infestations

Forest pest infestations can affect forest health and its ability to provide suitable habitat for the DFS. Gypsy moth (*Lymantria dispar*) outbreaks can decimate mature forest stands, although the affected stands will eventually regenerate. Monitoring outbreaks and spraying for gypsy moth control appear to have reduced this threat within the current range of the DFS, as infestations in the last several years have diminished in

acreage (Maryland Department of Agriculture Forest Health Highlights 2007, 2008, 2009; entire).

Southern pine bark beetle (*Dendroctonus frontalis*) infestations can also decimate mature forest stands within the range of the DFS. Although beetle outbreaks necessitated salvage cuts for a total of 809 ha (2,000 ac) scattered across the southern counties in Maryland in the early 1990s, monitoring and control efforts appear to have reduced this threat as well.

Overall, an analysis of forest pests in the Chesapeake Bay watershed found that most areas on the Eastern Shore where DFSs occur have a relatively low likelihood of insect infestations, with 3.8 to 10 percent of this area considered to be at risk (Sprague et al. 2006, p. 87). Although emergence of new forest pests is to be expected, Maryland's Forest Health Monitoring Program conducts surveys to map and report forest pest problems (Maryland Department of Agriculture, Forest Pest Management, 2012, entire). Forest pest outbreaks are likely to recur and may increase if the climate warms as projected; however, this threat appears to be localized and sporadic and, with existing programs to monitor and treat forest pest outbreaks, we conclude that this is not an extinction risk factor for the DFS.

Vehicle Strikes

Vehicle strikes are a relatively common source of DFS mortality. Similarly to

other species, the probability of DFSs being hit by vehicles is dependent on the DFS' density and proximity of roads to habitat. Vehicle strikes of DFSs tend to be reported more frequently in areas where DFSs are abundant, even if traffic levels are relatively low (e.g., Dorchester County). The conscientious reporting and collecting of DFSs killed on roads at the Blackwater and Chincoteague NWRs, where the DFS is very abundant, likely results in a more complete count of vehicle strikes than elsewhere. Vehicle strikes occur regularly at both refuges, yet DFSs remain abundant in both places and have expanded their occupancy at Chincoteague NWR.

Overall, most DFS populations across the subspecies' range continue to remain stable or are increasing in numbers despite these localized events, and we conclude that vehicle strikes alone are not a pervasive threat or extinction factor for this subspecies.

Overall Summary of Factors A through E

A summary of the five-factor analysis discussed above is provided in Table 3. Based on our analysis, we conclude that no single factor or combination of factors poses a risk of extinction to the DFS now or in the foreseeable future.

Table 3. Summary of Five-factor Analysis Under the Act for DFS.

Factor	Past trends	Foreseeable trends	Does factor pose an extinction risk?

Habitat loss from development	In the past 40 years, development increased from 3 to 8 percent of the land area in the Maryland range of the DFS; development also increased in Sussex County, Delaware. Some habitat has been lost, but most development occurs near existing towns where DFSs are not as prevalent, and development often occurs on agricultural rather than forest land.	Development is projected to increase to 14 percent of the land area in the Maryland and Delaware portions of DFS' range. Although most development will occur near urban areas where DFSs do not occur, 3 to 4 percent of total DFS occupied habitat is expected to be affected. While these losses may cause some small subpopulations to disappear, most occupied habitat will remain available. Despite the projected development, DFS distribution is expected to continue to expand.	No
Habitat loss from sea level rise	In the past, loss of occupied habitat due to inundation and saltwater intrusion has occurred in southern Dorchester County, although the acreage is not known. Sea level rise has occurred in the past at the rate of 3.5 millimeters (mm) per year (about 1 ft per 100 years).	Under an extreme scenario of 0.61-m (2-ft) inundation in 40 years, considerable acreage will be lost or isolated in southwestern Dorchester County. However, even if this loss were to occur immediately, the Dorchester County subpopulation would remain over 70 times larger than the MVP. It would thus continue to be the largest subpopulation, and given a 40-year time frame for reaching this level of inundation, is very likely to remain viable over the long term.	No
Habitat loss from timber harvest	Sawtimber harvest has occurred throughout the Delmarva Peninsula. Past harvest rates appear to have been sustainable, as DFSs have remained present across the range.	Recent declines in timber harvests, along with mill closings, may reduce the harvest rate for some time. Increasing parcelization of land will further reduce opportunities for large-scale timber production. Gentrification of the Eastern Shore is shifting public values for forest management from timber production to management for aesthetics and wildlife. Thus, future timber harvest rates are not expected to exceed past harvest rates.	No

Habitat loss from short-rotation pine management	In the past, short-rotation pine harvests occurred on approximately 68,000 ac of the forest lands in the Maryland and Delaware portions of the DFS' range. These acres were typically harvested before they were mature enough to become DFS habitat.	Since 1999, these lands have been acquired by the States of Maryland and Delaware and are now managed for sawtimber, which will provide suitable DFS habitat. Thus, 58,000 ac of land in Maryland and 10,000 ac in Delaware are protected from development and managed for sawtimber, enabling future use by the DFS that was previously precluded.	No
Overutilization	Hunting seasons have been closed since 1972.	Hunting seasons are likely to remain closed into the foreseeable future. If opened, DFS hunts would be limited and carefully managed. Interest in squirrel hunting has declined significantly, and public attitudes toward hunting have changed to primarily support hunting of those species viewed as needing population management, such as deer.	No
Disease or predation	Disease and predation have not been significant threats for this subspecies in the past 40 years.	These threats are not expected to increase, and the expanding distribution of the DFS lessens the potential impacts that disease and predation could have on this subspecies.	No
Inadequacy of regulatory mechanisms	Several new Maryland laws have appeared in the last 40 years to help conserve forest areas that support the DFS. DFS occurrences in Delaware and Virginia are almost exclusively on protected lands.	In the next 40 years, forest conservation measures are expected to continue, and the programs that have begun in Maryland are expected to continue or increase as they have in the past. Easement programs that protect private lands from development have begun in Delaware and Virginia and are expected to increase in the future as well.	No

Other natural or manmade factors	Forest pests and vehicle strikes have occurred in the past 40 years to some extent but have not limited the expansion of the DFS' distribution.	Forest pests and vehicle strikes are likely to continue to some extent, but neither factor has limited growth of the subpopulations in the past, nor are they expected to do so in the future. As DFS populations increase in density, vehicle strikes could increase, as the probability of a strike is primarily a function of animal abundance.	No
----------------------------------	---	--	----

Determination

We have carefully assessed the best scientific and commercial information available regarding past, present, and future threats to the long-term viability of the DFS. The current range of the DFS spans the northern and southern portions of the Delmarva Peninsula, comprising all three States, and extends from coastal areas to the interior of the Delmarva Peninsula. The DFS inhabits a variety of forest types, from hardwood-dominated to pine-dominated forests and from wetland to upland forests, indicating an underlying genetic variability or behavioral plasticity that should enhance the subspecies' ability to adapt to changing environmental conditions. Its relatively wide distribution also provides redundancy of occupied forest across the landscape, which further reduces extinction risk, and its continued occupancy of woodlots over the past 20 to 30 years and the success of translocation efforts indicate considerable resilience to stochastic events. We thus expect the rangewide population of the DFS not only to remain at recovery levels but to grow and continue to occupy the full complement of landscapes and forest types on the Delmarva Peninsula.

The Act defines “endangered species” as any species that is “in danger of extinction throughout all or a significant portion of its range,” and “threatened species” as any species that is “likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.” The term “species” includes “any subspecies of fish or wildlife or plants, and any distinct population segment [DPS] of any species of vertebrate fish or wildlife which interbreeds when mature.” As a subspecies, the DFS has both met the recovery criteria we consider for delisting, and the analysis of existing and potential risks shows that the range and distribution of the subspecies is sufficient to withstand all foreseeable threats to its long-term viability. Thus, after assessing the best available information, we have determined that the DFS is no longer in danger of extinction throughout all of its range, nor is it likely to become threatened with endangerment in the foreseeable future.

Significant Portion of the Range Analysis

Overview

Having determined the status of the DFS throughout all of its range, we next examine whether the subspecies is in danger of extinction in a significant portion of its range. Under the Act and our implementing regulations, a species may warrant listing if it is in danger of extinction or likely to become so throughout all or a significant portion of its range, as stated above. We published a final policy interpreting the phrase “significant portion of its range” (79 FR 37578; July 1, 2014). This policy states that: (1) If a species is found to be endangered or threatened throughout a significant portion of its

range, the entire species is listed as an endangered species or a threatened species, respectively, and the Act's protections apply to all individuals of the species wherever found; (2) a portion of the range of a species is "significant" if the species is not currently endangered or threatened throughout all of its range, but the portion's contribution to the viability of the species is so important that, without the members in that portion, the species would be in danger of extinction or likely to become so in the foreseeable future throughout all of its range; (3) the range of a species is considered to be the general geographical area within which that species can be found at the time we make any particular status determination; and (4) if a vertebrate species is endangered or threatened throughout an SPR, and if it can also be shown the population in that significant portion is a valid DPS, we will list the DPS rather than the entire taxonomic species or subspecies.

The SPR policy is applied to all status determinations, including analyses for the purposes of making listing, delisting, and reclassification determinations. The procedure for analyzing whether any portion is an SPR is similar, regardless of the type of status determination we are making. The first step in our analysis of the status of a species is to determine its status throughout all of its range. If we determine that the species is in danger of extinction, or likely to become so in the foreseeable future, throughout all of its range, we list the species as an endangered (or threatened) species and no SPR analysis will be required. If the species is neither in danger of extinction, nor likely to become so, throughout all of its range, we determine whether the species is in danger of extinction or

likely to become so throughout a significant portion of its range. If it is, we list the species as an endangered species or a threatened species, respectively; if it is not, we conclude that listing of the species is not warranted.

When we conduct an SPR analysis, we first identify any portions of the species' range that warrant further consideration. The range of a species can theoretically be divided into portions in an infinite number of ways. However, there is no purpose to analyzing portions of the range that are not reasonably likely to be both significant and endangered or threatened. To identify only those portions that warrant further consideration, we determine whether there is substantial information indicating that (1) the portions may be significant and (2) the species may be in danger of extinction in those portions or likely to become so within the foreseeable future. We emphasize that answering these questions in the affirmative is not a determination that the species is endangered or threatened throughout a significant portion of its range—rather, it is a step in determining whether a more detailed analysis of the issue is required. In practice, a key part of this analysis is whether the threats are geographically concentrated in some way. If the threats to the species are affecting it uniformly throughout its range, no portion is likely to warrant further consideration. Moreover, if any concentration of threats apply only to portions of the range that clearly do not meet the biologically based definition of “significant” (i.e., the loss of that portion clearly would not be expected to increase the vulnerability to extinction of the entire species), those portions will not warrant further consideration.

If we identify any portions that may be both (1) significant and (2) endangered or threatened, we engage in a more detailed analysis to determine whether these standards are indeed met. The identification of an SPR does not create a presumption, prejudgment, or other determination as to whether the species in that identified SPR is endangered or threatened. We must go through a separate analysis to determine whether the species is endangered or threatened in the SPR. To determine whether a species is endangered or threatened throughout an SPR, we will use the same standards and methodology that we use to determine if a species is endangered or threatened throughout its range.

Depending on the biology of the species, its range, and the threats it faces, it may be more efficient to address the “significant” question first, or the status question first. Thus, if we determine that a portion of the range is not “significant,” we do not need to determine whether the species is endangered or threatened there. Conversely, if we determine that the species is not endangered or threatened in a portion of its range, we do not need to determine if that portion is “significant.”

SPR analysis for DFS

Having determined that the DFS does not meet the definition of endangered or threatened throughout its range, we considered whether there are any significant portions of its range in which it is in danger of extinction or likely to become so. The full discussion regarding this analysis, summarized here, is provided in the September 23,

2014, proposed rule (79 FR 56686).

Applying the process described above, we evaluated the range of the DFS to determine if any area could be considered a significant portion of its range. Based on examination of the relevant information on the biology and life history of the DFS, we determined that there are no separate areas of the range that are significantly different from others or that are likely to be of greater biological or conservation importance than any other areas. We next examined whether any threats are geographically concentrated in some way that would indicate the subspecies could be in danger of extinction, or likely to become so, in that area. Through our review of threats to the subspecies, we identified some areas where DFSs are likely to be extirpated, including areas in Queen Anne's County, Maryland, where DFS distribution is scattered and relatively isolated by roads and water, and where future development is anticipated. We thus considered whether this area in the northern portion of the range may warrant further consideration as a significant portion of its range.

The forest area currently occupied by DFSs that is projected to be lost to development by 2030 would affect two small populations in Queen Anne's County that together constitute less than 0.5 percent of the rangewide population; however, five large DFS subpopulations are expected to remain viable across the northern portion of the current range. Additionally, Queen Anne's County's landscape does not represent a unique habitat type or ecological setting for the subspecies. Thus, the areas expected to

be lost due to development would not appreciably reduce the long-term viability of the subpopulation in the northern portion of the range, much less imperil the DFS in the remainder of its range. Therefore, we have determined that this portion of the DFS' range does not meet the definition of SPR under the 2014 policy.

We also anticipate loss of DFS-occupied forests from sea level rise in Dorchester County, Maryland, on the southwestern periphery of the habitat supporting the largest subpopulation of DFS. However, these losses do not threaten either the subpopulation or the subspecies with a risk of extinction, as there is ample unoccupied and sufficiently connected habitat for displaced squirrels to colonize; this is bolstered by their ability to readily colonize new areas evidenced by successful expansion of DFS translocations. In addition, we anticipate the continued presence of mixed pine/hardwood forests adjacent to marsh and open water in Dorchester County and do not anticipate losses of any unique habitats. Therefore, losses due to sea level rise in this portion of the range would not appreciably reduce the long-term viability of the subpopulation, much less cause the subspecies in the remainder of its range to be in danger of extinction or likely to become so. We thus conclude the portion of the range that is expected to be lost from sea level rise does not meet the policy's definition of an SPR.

These are the only two portions of the range that we identified as meriting analysis as to their significance and level of endangerment in conformance with the 2014 SPR policy. Finding that the potential losses in small areas of Queen Anne's County

would not cause cascading vulnerability and do not constitute unique areas that are not represented elsewhere in the subspecies' range, and finding that loss of areas in Dorchester County to sea level rise would not diminish the continued viability of the Dorchester subpopulation or cause the remainder of the subspecies to be in danger of extinction or likely to become so, we do not consider this subspecies to be endangered or threatened in any significant portion of its range. Further, having not found the basis for an SPR determination on grounds of either significance or threat, we also find that a DPS analysis is not warranted.

Summary

The subspecies' current and projected resiliency, redundancy, and representation should enable it to remain at recovered population levels throughout all of its range, and even expand its range, over the foreseeable future. Having assessed the best scientific and commercial data available and determined that the DFS is no longer endangered or threatened throughout all or a significant portion of its range and is not likely to become so in the foreseeable future, we are removing this subspecies from the List under the Act.

Future Conservation Measures

Section 4(g)(1) of the Act requires us, in cooperation with the States, to implement a monitoring program for not less than 5 years for all species that have been recovered and delisted. The purpose of post-delisting monitoring (PDM) is to verify that

a species remains secure from risk of extinction after the protections of the Act are removed by developing a program that detects the failure of any delisted species to sustain itself. If, at any time during the monitoring period, data indicate that protective status under the Act should be reinstated, we can initiate listing procedures, including, if appropriate, emergency listing under section 4(b)(7) of the Act.

This rule announces availability of the final PDM plan for the DFS. Public and peer review comments on the draft PDM plan have been addressed in the body of the plan and are summarized in the plan's appendix. The plan can be accessed at: <http://www.regulations.gov> under Docket No. FWS–R5–ES–2014–0021. It is also posted on the Service's national Web site (<http://endangered.fws.gov>) and the Chesapeake Bay Field Office's Web site (<http://www.fws.gov/chesapeakebay>). A summary of the PDM plan is provided below.

Post-delisting Monitoring Plan Overview

The PDM plan for the DFS builds upon and continues the research conducted while the DFS was listed. In general, the plan directs the Service and State natural resource agencies to (1) continue to map all DFS sightings and occupied forest to delineate the distribution and range, and (2) assess the occupancy of DFS in a sample of forest tracts to estimate the relative persistence of DFS populations versus extirpations across the range.

The PDM plan identifies measurable management thresholds and responses for detecting and reacting to significant changes in the DFS's protected habitat, distribution, and ability to remain at recovered population levels. If declines are detected equaling or exceeding these thresholds, the Service, along with other post-delisting monitoring participants, will investigate causes, including consideration of habitat changes, stochastic events, or any other significant evidence. Results will be used to determine if the DFS warrants expanded monitoring, additional research, additional habitat protection, or resumption of Federal protection under the Act.

Effects of This Rule

This final rule revises 50 CFR 17.11(h) to remove the Delmarva Peninsula fox squirrel from the List of Endangered and Threatened Wildlife (List). It also revises 50 CFR 17.11(h) and 50 CFR 17.84(a) to remove the listing and regulations, respectively, for the nonessential experimental population of Delmarva Peninsula fox squirrels at Assawoman Wildlife Management Area in Sussex County, Delaware. The prohibitions and conservation measures provided by the Act, particularly through sections 7 and 9, no longer apply to this subspecies. Federal agencies are no longer required to consult with the Service under section 7 of the Act in the event that activities they authorize, fund, or carry out may affect the DFS. The take exceptions identified in 50 CFR 17.84(a)(2) for the experimental population of the DFS are also removed. There is no critical habitat designated for the DFS.

Required Determinations

National Environmental Policy Act

We have determined that environmental assessments and environmental impact statements, as defined under the authority of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*), need not be prepared in connection with regulations pursuant to section 4(a) of the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

Government-to-Government Relationship with Tribes

In accordance with the President's memorandum of April 29, 1994, "Government-to-Government Relations with Native American Tribal Governments" (59 FR 22951), Executive Order 13175, and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our tribal trust responsibilities. We have determined that there are no tribal lands affected by this rule.

References Cited

A complete list of all references cited in this final rule is available at <http://www.regulations.gov>, or upon request from the Chesapeake Bay Field Office (see **ADDRESSES**).

Authors

The primary authors of this final rule are staff members of the Chesapeake Bay

Field Office (see **ADDRESSES**).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Regulation Promulgation

Accordingly, we amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361-1407; 1531-1544; 4201-4245, unless otherwise noted.

§17.11—[Amended]

2. Amend §17.11(h) by removing both entries for “Squirrel, Delmarva Peninsula fox” under MAMMALS from the List of Endangered and Threatened Wildlife.

§17.84—[Amended]

3. Amend §17.84 by removing and reserving paragraph (a).

Dated: October 23, 2015

Signed: James W. Kurth

Acting Director, U.S. Fish and Wildlife Service

[FR Doc. 2015-28742 Filed: 11/13/2015 8:45 am; Publication Date: 11/16/2015]